

### **IN THE CLAIMS**

Claims 94-95 and 99 to 106 have been allowed and remain pending. Please add new claims 107 to 129 as follows:

1-93. (cancelled)

94. (allowed) A vaccine comprising an isolated recombinant PMPE polypeptide comprising a polypeptide encoded by a nucleic acid molecule comprising the nucleotide sequence of SEQ ID No.: 1 fused to a nucleic acid molecule encoding a histidine affinity ((H)<sub>6</sub>) domain.

95. (allowed) A vaccine comprising an isolated recombinant PMPE polypeptide comprising the amino sequence of SEQ ID No.: 2 fused to an amino acid sequence comprising a histidine affinity ((H)<sub>6</sub>) domain.

96-98. (cancelled)

99. (allowed) The vaccine of claim 94 or 95, further comprising one or more adjuvants or immunostimulatory compounds.

100. (allowed) The vaccine of claim 94 or 95, wherein the one or more adjuvants or immunostimulatory compounds are selected from the group consisting of alum, MLT, QS21, MF59, CpG DNA, PML, calcium phosphate and PLG.

101. (allowed) The vaccine of claim 94 or 95, comprising one adjuvant or immunostimulatory compound.

102. (allowed) The vaccine of claim 94 or 95, comprising two different adjuvants or

immunostimulatory compounds.

103. (allowed) The vaccine of claim 94 or 95, additionally comprising one or more immunogens selected from the group consisting of a lipid, lipoprotein, phospholipid, lipooligosaccharide, protein, attenuated organism and inactivated whole cell.
104. (allowed) The vaccine of claim 103, wherein the one or more immunogens are DPT vaccine, a HMWP of *C. trachomatis*, a MOMP of *C. trachomatis*, or an entire organism, or subunit therefrom, of *Chlamydia*, *Neisseria gonorrhea*, HIV, *Haemophilus influenzae*, *Moraxella catarrhalis*, *Human papilloma virus*, *Herpes simplex virus*, *Haemophilus ducreyi*, *Treponema palladium*, *Candida albicans* or *Streptococcus pneumoniae*.
105. (allowed) The vaccine of claim 103, wherein the additional immunogen is another protein of *Chlamydia*.
106. (allowed) The vaccine of claim 103, wherein the additional immunogen is HMW (High Molecular Weight) protein of *Chlamydia trachomatis*.
107. (New) A vaccine comprising an isolated putative membrane protein E (PMPE) polypeptide of a *Chlamydia spp.* comprising an amino acid sequence of SEQ ID No.: 2.
108. (New) A vaccine comprising an isolated putative membrane protein E (PMPE) polypeptide of a *Chlamydia spp.* comprising an amino acid sequence at least 90% identical to SEQ ID No.: 2 when % identity is determined using XBLAST

program, score=50, wordlength=3.

109. (New) A vaccine comprising an isolated putative membrane protein E (PMPE) polypeptide of a *Chlamydia spp.* coded by a nucleic acid which is hybridizable under high stringency conditions to the sequence of SEQ ID No.: 1, wherein high stringency conditions are as follows:

(a) Prehybridization 8 hours at 65°C in buffer comprising 6X SSC, 50 mM Tris-HCL (pH 7.5), 1 mM EDTA, 0.02% PVP, 0.02% Ficoll, 0.02% BSA, and 500 ug/ml denatured salmon sperm DNA.

(b) Hybridization 48 hours at 65°C in prehybridization mixture containing 100 ug/ml denatured salmon sperm DNA and  $5-20 \times 10^6$  cpm of  $^{32}\text{P}$ -labeled probe.

(c) First wash 1 hour at 37°C in a solution containing 2X SSC, 0.01% PVP, 0.01% Ficoll, and 0.01% BSA.

(d) Final wash 45 minutes in 0.1X SSC at 50°C before autoradiography.

110. (New) A vaccine comprising an isolated putative membrane protein E (PMPE) polypeptide of a *Chlamydia spp.* comprising an at least 8 amino acid fragment of SEQ ID No.: 2 which fragment specifically binds an antibody that specifically binds to a protein comprising SEQ ID No.: 2.

111. (New) A vaccine comprising an isolated putative membrane protein E (PMPE) polypeptide of a *Chlamydia spp.* produced by a method comprising culturing a

host cell containing a nucleic acid molecule comprising the sequence of SEQ ID No.: 1 and recovering said recombinant polypeptide from said host cell.

112. (New) A vaccine comprising an isolated putative membrane protein E (PMPE) polypeptide of a *Chlamydia spp.*, said polypeptide produced by a method comprising culturing a host cell containing a nucleic acid molecule which encodes an amino acid sequence of SEQ ID No.: 2 and recovering said recombinant polypeptide from said host cell.
113. (New) A vaccine comprising an isolated putative membrane protein E (PMPE) polypeptide of a *Chlamydia spp.*, said polypeptide produced by a method comprising culturing a host cell containing a nucleic acid molecule which encodes an amino acid sequence at least 90% identical to SEQ ID No.: 2 when percent identity is determined using XBLAST program, score=50, wordlength=3 and recovering said recombinant polypeptide from said host cell.
114. (New) A vaccine comprising an isolated putative membrane protein E (PMPE) polypeptide of a *Chlamydia spp.*, said polypeptide produced by a method comprising culturing a host cell containing a nucleic acid molecule which encodes an amino acid sequence comprising an at least 8 amino acid fragment of SEQ ID No.: 2 which fragment specifically binds an antibody that specifically binds to a protein comprising SEQ ID No.: 2 and recovering said recombinant polypeptide from said host cell.
115. (New) A vaccine comprising an isolated putative membrane protein E (PMPE)

polypeptide of a *Chlamydia spp.*, said polypeptide produced by a method comprising culturing a host cell containing a nucleic acid molecule comprising the sequence of SEQ ID No.: 1 fused to a histidine affinity ((H)<sub>6</sub>) domain and recovering said recombinant polypeptide from said host cell.

116. (New) A vaccine comprising an isolated putative membrane protein E (PMPE) polypeptide of a *Chlamydia spp.*, said polypeptide produced by a method comprising culturing a host cell containing plasmid M15 pREP (pQE-pmpE-Ct)#37 obtainable from *E. coli* having ATCC accession No. PTA-2462 and recovering said recombinant polypeptide from said host cell.

117. (New) A vaccine comprising an isolated putative membrane protein E (PMPE) polypeptide of a *Chlamydia spp.*, said polypeptide produced by a method comprising culturing a host cell containing a nucleic acid molecule which is hybridizable under high stringency conditions to the sequence of SEQ ID No.: 1 and recovering said recombinant polypeptide from said host cell, wherein high stringency conditions are as follows:

(a) Prehybridization 8 hours at 65°C in buffer comprising 6X SSC, 50 mM Tris-HCL (pH 7.5), 1 mM EDTA, 0.02% PVP, 0.02% Ficoll, 0.02% BSA, and 500 ug/ml denatured salmon sperm DNA.

(b) Hybridization 48 hours at 65°C in prehybridization mixture containing 100 ug/ml denatured salmon sperm DNA and 5-20 x 10<sup>6</sup> cpm of <sup>32</sup>P-labeled probe.

(c) First wash 1 hour at 37°C in a solution containing 2X SSC , 0.01% PVP, 0.01% Ficoll, and 0.01% BSA.

(d) Final wash 45 minutes in 0.1X SSC at 50°C before autoradiography.

118. (New) The vaccine of any one of claims 107-117 wherein the *Chlamydia spp.* is *Chlamydia trachomatis*, *Chlamydia pneumonia*, *Chlamydia psittahi* or *Chlamydia pecorum*.
119. (New) The vaccine of any one of claims 107-117 wherein the *Chlamydia spp.* is *Chlamydia trachomatis*.
120. (New) The vaccine of any one of claims 107-117 further comprising one or more adjuvants or immunostimulatory compounds.
121. (New) The vaccine of claim 120 wherein the adjuvants or immunostimulatory compounds are one or more of alum, MLT, QS21, MF59, CpG DNA, PML, calcium phosphate and PLG.
122. (New) The vaccine of claim 120 comprising one adjuvant or immunostimulatory compound.
123. (New) The vaccine of claim 120 comprising two different adjuvants or immunostimulatory compounds.
124. (New) The vaccine of claim 120 additionally comprising one or more immunogens selected from the group consisting of a lipid, lipoprotein, phospholipid, lipooligosaccharide, protein, attenuated organism and inactivated whole cell.

125. (New) The vaccine of claim 124 wherein the one or more immunogens are a DPT vaccine, a HWMP of *Chlamydia trachomatis*, or an entire organism, or subunit therefrom, of *Chlamydia*, *Nisseria gonorrhea*, *HIV*, *Haemophilus influenzae*, *Moraxella catarrhalis*, *Human papilloma virus*, *Herpes simplex virus*, *Haemophilus ducreyi*, *Treponema palladium*, *Candida albicans* or *Streptococcus pneumoniae*.
126. (New) The vaccine of claim 124 wherein the additional immunogen is another protein of *Chlamydia*.
127. (New) The vaccine of claim 124 wherein the additional immunogen is HMW (High Molecular Weight) protein of *Chlamydia trachomatis*.
128. (New) An immunogenic composition comprising an isolated putative membrane protein E (PMPE) polypeptide of a *Chlamydia spp.* coded by a nucleic acid which is hybridizable under high stringency conditions to the sequence of SEQ ID No.: 1, wherein high stringency conditions are as follows:
- (a) Prehybridization 8 hours at 65°C in buffer comprising 6X SSC, 50 mM Tris-HCL (pH 7.5), 1 mM EDTA, 0.02% PVP, 0.02% Ficoll, 0.02% BSA, and 500 ug/ml denatured salmon sperm DNA.
  - (b) Hybridization 48 hours at 65°C in prehybridization mixture containing 100 ug/ml denatured salmon sperm DNA and  $5-20 \times 10^6$  cpm of  $^{32}\text{P}$ -labeled probe.
  - (c) First wash 1 hour at 37°C in a solution containing 2X SSC , 0.01%

PVP, 0.01% Ficoll, and 0.01% BSA.

(d) Final wash 45 minutes in 0.1X SSC at 50°C before autoradiography.

129. (New) An immunogenic composition comprising an at least 8 amino acid fragment of SEQ ID No.: 2 which fragment specifically binds an antibody that specifically binds to a protein comprising SEQ ID No.: 2.